

ORIGINAL	
P.U.C. Case No.	DE 09-170
Exhibit No.	#5
Witness	
DO NOT REMOVE FROM FILE	

**STATE OF NEW HAMPSHIRE**  
**BEFORE THE**  
**PUBLIC UTILITIES COMMISSION**  
**DOCKET No. DE 09-170**

**2010 CORE ENERGY EFFICIENCY PROGRAMS**

**Rebuttal Testimony of**  
**Carol Woods**  
**New Hampshire Electric Cooperative, Inc.**

**December 9, 2009**

1 **Q. Please state your name, place of employment and your position.**

2  
3 A. My name is Carol Woods. I am employed by the New Hampshire Electric Cooperative, Inc.  
4 as Energy Solutions Manager. I am responsible for the implementation of the CORE Energy  
5 Efficiency Programs at NHEC, and I have served in that capacity for 7 years.  
6

7 **Q. Have you reviewed the direct prefiled testimony of Stephen R. Eckberg on behalf of the**  
8 **Office of the Consumer Advocate in this docket?**

9  
10 A. Yes, and the purpose of my testimony here is to address Mr. Eckberg's testimony,  
11 specifically with respect to the Load Management Program.  
12

13 **Q. What did the OCA recommend with respect to NHEC's utility-specific filing?**

14  
15 A. The OCA recommended that NHEC should no longer receive CORE SBC funding for the  
16 NHEC load management program. See pages 9-11 of Mr. Ekberg's direct prefiled testimony.  
17

18 **Q. Please explain what the load management system is.**

19  
20 A. The load management system is a demand-side management technique that NHEC has  
21 offered since 1993, with the approval of the PUC. By means of a radio-controlled switch,  
22 NHEC can turn off or control electric baseboard heat and electric water heaters in the homes  
23 of participating members. The SBC funding for this measure is used to maintain the system  
24 at the members' locations.  
25

26 **Q. Do you agree with the OCA's recommendation?**  
27

1 A. No, I do not.

2 **Q. Why not?**

3

4 A. Load management produces savings for the members and reductions in the use of electricity.

5 Load management reduces the total amount of capacity which is needed and thus reduces the  
6 need to build additional transmission lines or substations. With approximately 5000 NHEC  
7 members participating in the load management program, this program is the largest of all the  
8 NHEC energy efficiency programs except for Energy Star® Lighting, and it undoubtedly  
9 provides the most significant impact of any of the efficiency programs offered by NHEC.

10

11 **Q. Please describe the benefits of this program in more detail.**

12

13 A. Load management works by controlling load and thus reducing the costs relating to  
14 transmission and capacity. Let me address each piece individually.

15

16 The transmission piece looks to obtain a reduction in the PSNH Interconnection and Delivery  
17 Agreement charges. These charges are based on the monthly peak half-hourly KVA during  
18 the on-peak period per delivery point, subject to a 70% ratchet. Since NHEC is no longer a  
19 wholesale customer of PSNH, the rate is essentially a rate for the transmission of power from  
20 the NU Local Transmission System to NHEC's delivery points. NHEC aims to reduce  
21 these costs primarily by controlling load during the winter months, and especially by  
22 controlling the load at the delivery points closest to our ski areas, which are subject to the  
23 demand ratchet. The ratchet benefit at the Thornton and Woodstock delivery points is  
24 typically for 8 to 9 months (along with the monthly benefit of reduction demand for that  
25 month). The demand ratchet for the North Conway delivery point is usually about 6 months,  
26 as its summer peak loads are typically greater than 70% of its winter peak because of summer  
27 tourism and the air-conditioning load at the area shopping centers.. A 1 kW load reduction

1 at the time of the winter peak at Thornton and Woodstock is typically worth at least \$6.49,  
2 and at North Conway \$5.10. NHEC controls loads at its other delivery points also; however,  
3 those benefits are not quite as significant as the Thornton, Woodstock and North Conway  
4 areas. The reduction of the Interconnection and Delivery charges reduces the Regional  
5 Access Charges, a reconciling rate, to our members.

6  
7 In addition, transmission charges (i.e., monthly charges for local area network service (LNS)  
8 and regional network service (RNS)) are rising. In order to save on these rates, NHEC's load  
9 coincident with NU's monthly peak must be reduced. This is challenging to predict and  
10 applies monthly rather than for a single hour/year. However, the benefits (especially during  
11 the winter when both water and space heating can be controlled) are significant and rising.  
12 Currently, the RNS rate is about \$5.23/month, while the LNS rate is based on annual revenue  
13 requirements and varies somewhat month to month based on NHEC's pro rata share of the  
14 total network load. A total charge of almost \$6/month per kW is a reasonable estimate for  
15 the rate for this winter. Accordingly, if 1 kW was controlled for three winter months, the  
16 savings would be \$18/year. Transmission costs are also recovered through the Regional  
17 Access Charge; therefore, these savings reduce that charge for our members as well.

18  
19 With respect to capacity, the load management benefit pertains to the ISO-NE summer peak  
20 load. The ISO-NE monthly capacity market rate is currently \$4.10 and will increase to \$4.50  
21 in June of 2010. At \$4.10, a 1 kW reduction in NHEC's load would save over \$49.20 for the  
22 year (supply resources receive \$4.10/month and currently are well in excess of load, resulting  
23 in load also paying its share of the excess). NHEC recovers the costs of the capacity market  
24 for members receiving Co-op Power through its Co-op Power Charge, a reconciling rate.  
25 Therefore, savings are directly received by NHEC's members.

26  
27 **Q. How many NHEC members have controlled load?**

1

2 A. Approximately 4000 members have had water heater controls installed. About 1000  
3 additional members have had Electric Thermal Storage (ETS), Dual Fuel (DF) or Storage  
4 Water Heater (SWH) controls installed. This means that about 6000 NHEC members  
5 participate in this program - in other words, 7% of the membership.

6

7 **Q. What sort of information can you provide concerning the results of the load**  
8 **management program?**

9

10 A. There are three main reasons why we know the load management program is successfully  
11 reducing load and costs. First, as discussed above, it is logically the case that these reductions  
12 will occur if a program is in place. Second, we are working with technology which has been  
13 proven over the course of 20 years, we know what the technology is connected to, and we  
14 know that the technology works. Third, we know from eyeballing our load measuring  
15 devices that, when a command goes out to control load, there is in fact an actual reduction in  
16 the load.

17

18 Unfortunately, we cannot currently measure with specificity what we actually are achieving  
19 through the load management system. This is because the system utilizes a one-way signal to  
20 the switches in the members' homes, and does not receive any data back. The last time that  
21 NHEC performed an analysis of the benefits regarding controlled load on its system was in  
22 1996. At that time, savings were estimated at 6 kW savings for each member with electric  
23 thermal storage, 2.8 kW for each member with dual fuel installation, and .6 kW for standard  
24 and storage water heating.

25

26 **Q. What sorts of measurements are being done or are in the planning stages?**

27

1 A. Fortunately, NHEC is in the process of establishing a two-way communication system with  
2 load control, which will allow us to provide some definitive data concerning the impact of  
3 the system. NHEC has recently installed new software which will allow us to obtain  
4 information about actual load reduction results. As this software is used over the course of  
5 2010 and especially the summer months, we expect to be in a far better position with respect  
6 to our ability to specifically measure the results of the load management program.

7  
8 In addition, we have received two federal grants regarding the Smart Grid system. One of  
9 those grants is for the purpose of conducting a demonstration which involves the  
10 establishment of a two-way system with respect to 500 NHEC member meters. We expect to  
11 have those meters deployed over the next few years. The other grant is a full-scale two-way  
12 system on all NHEC meters. Obviously, with each step toward the full construction of Smart  
13 Grid, we will have access to better metrics concerning how the load management program is  
14 working.

15  
16 **Q. Do you agree that SBC funding of this program should be dropped?**

17  
18 A. No, I do not. This program has been in place for 16 years, and it has consistently been part  
19 of NHEC's CORE filing each year. A substantial number of our residential members  
20 participate in this program, and they have now invested in the equipment and opted for ETS  
21 over other heating systems. We think that the benefits discussed above provide sufficient  
22 justification for the existence of the load management program and its funding through the  
23 SBC. The fact that new diagnostic tools will be in place during the course of the coming  
24 year means that we are likely to have better measurements a year from now and even better  
25 measurements the year after that. Thus, even assuming for the sake of argument that the  
26 funding of the program ought to be discontinued at some point, this is not the right time to  
27 make that decision. It will be more beneficial to energy efficiency efforts and to the

1 members of NHEC if funding of this program is allowed to continue, at least pending the  
2 receipt of the information which we expect to have available during the course of 2010.

3

4 **Q. So what is your recommendation with respect to the OCA's testimony on the load**  
5 **management program funding?**

6

7 A. I recommend that the SBC funding of the load management program continue as provided in  
8 the September 30, 2009 CORE utility-specific filing, page 32. This is with the understanding  
9 that, during 2010, NHEC will be able to develop and produce more detailed information  
10 concerning the impact of the load management program.

11

12 **Q. Is this the end of your testimony?**

13

14 A. Yes it is.